USING TECHNOLOGY TO TEACH STUDENTS WITH MILD DISABILITIES: CURRENT TRENDS AND FUTURE TECHNOLOGIES

Rachel Roper
ELEMENTARY GENERAL EDUCATION, SENIOR, INDIANA UNIVERSITY

ABSTRACT

The use of technology has seen a significant increase in U.S. public schools. Evidence has shown more and more student success as new technologies are being integrated into the educational curriculum. The area that is experiencing growing attention with regard to technology integration is that of special education, as it has become an IEP (Individualized Education Program) requirement established by the Individuals with Disabilities Education Act (IDEA). A growing body of evidence is showing the benefits of this aid to students with special needs. Many technologies can be used for individuals with mild disabilities, such as computer-managed instruction, electronic books, and technology tools. One of the drawbacks to using technology in the classroom is that many educators are not prepared to use these resources. Fortunately, a growing number of pre-service teachers are becoming familiar with these technologies for use in their classrooms.

Incredible advances have been seen in the development of technology, mostly in the last decade. With the use of this technology comes a large array of opportunities, but none of these opportunities seem more rewarding than how these advances can be used to further the education of children. Despite assumptions that technology's role in the classroom is to teach, Jonassen, Howland, Moore, and Marra (2003) explain that using technology should never be used to teach students, but should be used in conjunction with teachers to engage

students so that they may become facilitators of their own learning. Technology should be used as a learning tool by doing, conversing, reflecting, and constructing knowledge.

As greater advances are being made, more attention is being focused on how these technologies can advance the lives of individuals with disabilities. Universal Design is "the design of new buildings, tools, and instructional programs to make them usable by the widest possible population of potential learners" (Hallahan & Kauffman, 2003). Applying this concept, more and more assistive technologies are being created to ensure that all individuals may have the best opportunities to lead normal lives. Also, academic benefits of technology include: instant feedback at the completion of an activity; students are able to complete the tasks at their own pace; individualized computer-based programs geared towards meeting the needs of different learners; students' self-concepts improve and they become more excited about school; academic performance improves; students are able to learn concepts more easily and in less time; and students are exposed to things that they may have never been exposed to or learned about (Lewis, 2000).

Seeing the importance of these concepts, amendments added to the Individuals with Disabilities Education Act (IDEA) in 1997 mandated the recognition and availability of Assistive Technology (AT) devices and services in each Individualized Education Program (IEP). McCarthy, Cambron-McCabe, and Thomas (2004) explain that IEPs must be designed to provide the child with some educational benefit and be made available in the neighborhood school when appropriate and feasible. This requires that any assistive technologies that aid in meeting the goal of a Free Appropriate Education (FAPE) in the Least Restrictive Environment (LRE) be provided to all students (QIAT, 2000). In considering LREs, it must also be considered that children with disabilities should be educated to the maximum extent appropriate alongside their non-disabled peers. Whether this placement is best in a public or private setting, the use of technology helps to be the great equalizer for students to achieve their highest potential (McCarthy et al., 2004).

As cited in Ashton (2000), Melichar describes seven categories of "human functioning" that may require the use of AT. The one to be examined is that of Education and Transition Problems, involving any hindrance students may have that keep them from succeeding in school. Computer adaptations and educational software are two of the most widely used solutions to aid students with disabilities. Technology has extensive implications for all levels and groups of exceptionality. It is important to note that treatment procedures will differ across these groups as each consists of unique obstacles. The particular group that will be focused on presently is that of persons with mild disabilities (Blackhurst & Lahm, 2000).

Individuals with mild disabilities make up the largest group of exceptional individuals, about 72% of students in special education. In fact, with the appropriate assistance, many are able to function normally in society. Included in this category are those with learning disabilities, mild mental retardation, or emotional and behavioral disorders. Two of the major difficulties these groups have are compensating for material they are taught while being unable to memorize and having short attention spans. Computer-managed instruction, electronic books, and technology tools are just a few of the technologies used to support teaching.

Computer-based instruction includes software programs that have been devel-

oped to aid in the mastering of basic skills. Mainly available on CD or DVD-ROMs, these programs provide "animation, sounds, illustrations, and movie clips" (Okolo, 2000). These tools are designed for drill and practice in mathematics, reading, spelling, and even keyboarding. Software has also been designed to encourage problem-solving and critical thinking. By teaching general problem-solving skills and examples the students are familiar with, users are able to make relationships with the prior knowledge they have to create a better understanding of the presented concepts (Okolo, 2000).

One problem that many special educators encounter is attempting to apply the lessons of a regular textbook to the curriculum of exceptional students. Due to the mass production of textbooks, they offer few accommodations for students with disabilities. Thus, the teacher is left with the burden of attempting to further individualize lessons for these students (Rose, 2001). Okolo (2000) suggests the use of Electronic Books to overcome this obstacle with teaching. These materials can be used to enhance reading and comprehension by providing students the opportunities to obtain definitions, engage in activities to promote learning, have explanations and summaries provided, along with a variety of other options that the teacher may activate if he or she so chooses. Textbooks are not the only electronic books available. Electronic storybooks and basal readers can also be used to enhance the learning experiences of students.

A variety of technological tools are also available to aid students with mild disabilities. Okolo observes that "word processing has overtaken basic skill instruction as the predominant use of educational technology in today's schools" (p. 255). Because students who are poor writers often feel pressured when presented with such tasks, these programs encourage students by presenting their work, as they complete it, with a clean appearance. Students, therefore, are able to communicate with one another more comfortably about the work because the text is seen more clearly on the screen. Also, with such tools as spell check, students are able to make revisions more easily. These programs allow kids to be proud of their work when it is displayed in such a professional manner. This can be especially encouraging for students with poor handwriting who may feel insecure about others' abilities to read what has been written. Another tool known as word prediction can be used for students who may possess poor keyboarding skills or have trouble spelling words. This tool predicts possible words the student may be trying to type after the first few letters have been recorded (Okolo, 2000). As teachers facilitate the use of these tools in their classrooms, they present their students, especially those scoring below average, with an opportunity to increase their abilities which leads to an encouraged outlook on learning.

One of the latest developments in assistive technology is that of the Kurzweil Educational Systems. This company is the leading developer of assistive technologies that aid those individuals with learning disabilities or those experiencing vision impairments. The educational products offered include access to printed or electronic texts, a number of reading voice options from which students can choose to be read to, multiple languages, and an expanded vocabulary with an online thesaurus and dictionary. These tools allow students with impairments to have equal access to the lessons being studied. In addition, the software provides students with assistance in study skills and note taking. Using these programs, teachers are able to provide their students with an even less restrictive environment that

further stimulates students to be independent learners (Kurzweil, 2004).

Unfortunately, many teachers and administrators face a problem when the opportunity of technology integration is presented to them. Too often these individuals are not knowledgeable on how to use these aids. With so much evidence of the benefits of these tools, it is undeniably becoming a necessity in the classroom. Also, many states are requiring that teachers fulfill standards requiring the use of technology in their teaching. With an increasing number of technologies being required in students' IEPs, the essential question is what is being done to ensure that preservice teachers are more prepared for this environment? Often it is the responsibility of individual districts to provide this type of training to their teachers. However, an increasing number of universities are beginning to acknowledge this issue and have implemented professional development programs to train school personnel how to effectively use these tools. Many school districts are hiring individuals to oversee the technology in their schools that aid in the delivery of these educational services (QIAT, 2000).

An increasing trend in America's schools is that of inclusion. At the same time, teachers are experiencing increased pressure to show evidence of augmented student performance as influenced by state and federal initiatives such as No Child Left Behind and IDEA (Kurzweil, 2004). As these teachers make attempts to facilitate an equal learning opportunity for all students, technology becomes a very important tool. Because of the various ways that technology can be individualized to meet student needs, teachers are able to format software accordingly. Technologies such as simulations provide students opportunities to vicariously experience a variety of situations that cannot be made possible in a simpler way. Multimedia databases, such as hypermedia, are also useful tools with such examples as electronic encyclopedias. Finally, one of the most useful tools is that of the World Wide Web, offering thousands of sites including access to a never ending supply of information and services (Hasselbring & Bottge, 2000).

Technology has and will continue to make great strides as an educational tool. Unfortunately, it is difficult to judge where the future of educational technology is headed since education, as a whole, tends to fall behind society in its use of technology. This is even more true for special education due to its individualized nature. One fact that can be predicted for education is a definite decrease in the cost of products. This decrease will allow many products to become more readily available and this easy access will aid in the search for equity in education. One advance that is finding increasing popularity is that of gaming in conjunction with education. Programs are being produced that allow students to interact with games while they build conceptual learning (Tinker, 2001). One such program, Quest Atlantis, is currently being used to support students with Dyslexia to become more familiar with reading and writing. The students venture through a three-dimensional space, visiting various worlds, and completing quests that usually involve doing online research, writing reflections, and submitting documents.

With the large number of mildly disabled students in our schools, it is very important that teachers make every effort to educate their students as best as possible. Evidence has shown that technology is one of the best ways to implement this successfully. Using a variety of software and technology tools this process is becoming easier every day. Teachers must also make sure that they are educated in

how to use these tools to better instruct their students' learning. As advancements in the field of technology continue to be made, more and more opportunities for this level of learning will be available to students and, as evidence has shown, more students will have better opportunities to receive the best education possible.

REFERENCES

Ashton, T. M. (2000). Assistive technology. *Journal of Special Education Technology, 15*, 57-58.

Blackhurst, A.E., & Lahm, E.A. (2000). Technology and exceptionality foundations. *Technology and exceptional individuals* (3rd ed.). Austin, TX: Pro-Ed.

Hallahan, D. P., & Kauffman, J. M. (2003). Current trends and issues: Acess to new technologies. *Exceptional learners: Introduction to special education*. (9th ed., pp. 62-63). Boston: Allyn and Bacon.

Hasselbring, T.S., & Bottge, B.A. (2000). Planning and implementing technology programs in inclusive settings. *Technology and Exceptional Individuals* (3rd ed.). Pro-Ed: Austin, Texas.

Jonassen, D.H., Howland, J., Moore, J., & Marra, R.M. (2003). What is meaningful learning?. *Learning to solve problems with technology* (2nd ed.). Upper Saddle River, NJ: Merrill Prentice Hall.

Kurzweil Education Systems, Inc. (2004). *Kurzweil 1000 in an educational environment*. Retrieved October 4, 2004, from http://www.kurzweiledu.com/products_k1000.asp

Lewis, R. B. (2000). Musings on technology and learning disabilities on the occasion of the new millennium. *Journal of Special Education Technology, 15*, 5-12.

McCarthy, Martha M., Cambron-McCabe, & Thomas, Stephen B. (2004). Rights of students with disabilities. *Legal rights of teachers and students*. Boston: Pearson Education, Inc.

Okolo, C.M. (2000). Technology for individuals with mild disabilities. In J.D. Lindsey (Ed.), *Technology and exceptional individuals* (3rd ed.). Austin, TX. Pro-Ed.

QIAT Consortium Leadership Team. (2000). Quality indicators for assistive technology services in school settings. *Journal of Special Education Technology, 15*, 25-36.

Rose, D. (2001). Universal design for learning. *Journal of Special Education Technology, 16,* 57-58.

Tinker, R. (2001). Future technologies for special learners. *Journal of Special Education Technology, 16*, 31-37.